GENERAL®

THE SEEKER™ 400 SERIES WIRELESS RECORDING, VIDEO INSPECTION SYSTEMS

DCS400
DCS400-05
DCS400-09

USER'S MANUAL

Please read this manual carefully and thoroughly before using this product.

CONTENTS

Introduction 3
Overview 3
Features 4
System Includes 4
Specifications 5
Safety and Maintenance Instructions . . . . . 6 - 7
Product Components 8
- One Minute Overview 8
- In-Depth Product Overview 9
- Main Controls 10
- Setting-up the System 11
- Powering the System 11
- Charging the System 12
- Probe 13
- Monitor 13
- View and Record Images Mode 14
- Main Menu Mode 15
- Playback Mode 16

Taking and Viewing Pictures and Videos. 17
Viewing Stored Images and
Uploading Pictures and Videos . . . . . 18 - 19
The Menu Structure. 20
Shut Down 20
Trouble Shooting 21
Warranty Information 22

INTRODUCTION

Thank you for purchasing a Seeker™400 Series Wireless, Recording, Video Inspection System. Please read this user's manual carefully before using this product.

All of the scopes in The Seeker 400 Series are designed as remote inspection devices. They can be used to look into tight or inaccessible areas and wirelessly transmit real time video or still images for viewing or recording. The only difference between The Seeker 400 systems is the diameter of the camera tipped probe. All of the probes are 1m (3.28 ft.) long, flexible-obedient with three diameters available; 5.5mm, 9mm, and 12mm.Typical applications include HVAC inspection, automotive inspection, building, construction, machinery, boat, and aircraft inspection.

OVERVIEW

Each ***SEEKER***™ system comes with the a pistol grip handle, a removable LCD display, 1m (3.28 ft.) flexible-obedient probe, 2GB Micro SD card, USB and video interconnect cables, Li-ion rechargeable batteries, battery charger, custom molded hard case, instruction manual and 3 year limited warranty.

The system includes a 3.5 in. (88.9mm) diagonal high clarity color LCD and a camera tipped probe with adjustable LED lights imbedded in the tip. The DCS400 system with the 12mm diameter probe includes three accessory tools which can be attached to the probe tip for various applications: the magnetic tip is used to pick up small metal objects; the mirror tip is used to view at a 90° angle and the hook is used to grab onto objects. The DCS400 Series wireless function allows the user to detach the LCD from the handle and view findings remotely up to 32 ft. away. Each 400 Series system operates with built-in rechargeable lithium ion batteries. Each system will interface with external displays such as a computer, a TV or an LCD panel via USB, SD card or AV cable. Using General Tools model RCV100 Streaming Video USB wireless receiver (sold separately), live video can be wirelessly transmitted to a computer then sent onto the internet for remote conferencing.

FEATURES

- 1m (3.28 ft.) long, flexible-obedient probe which is water/dust proof to IP67 standards
- 3.5 in. (88.9mm) diagonal TFT-LCD wireless color monitor can be detached from the unit for remote viewing up to 10m (32 ft.) away. Imbedded magnets and flip-out stand on the back of the monitor allow hands-free operation.
- 4x zoom feature • 180° image flip feature
- Both monitor and handle use rechargeable Li-ion batteries which can be charged at the same time using the included one–into-two charging cable.
- System comes complete with batteries and charger
- Adjustable LED lights inside the tip of the probe illuminate dark spaces for clear inspection
- View results in real-time, record video and capture/save still photos (JPEG)
- Up to 3 hours of video (AVI)
- NTSC or PAL compatible
- USB and video interconnect cables are included
- Choice of 5 menu languages: English, French, Spanish, Chinese and Portuguese
- Optional probes or probe extensions are available for each system to extend the reach of the camera

SYSTEM INCLUDES:

- Custom Molded Hard Case
- DCS400 Pistol Grip Handle
- A 1m (3.28 ft.) Long, Flexible-Obedient Probe
- Detachable, Wireless Monitor with Flip-out Stand and Built-in Magnets
- 2GB Micro SD Memory Card
- USB and Video Interconnect Cables
- 2 “Li-ion” Rechargeable Batteries with AC Adapter/Charger
- The 12mm System (DCS400) comes with 3 Accessory Tools: (45° Mirror, Magnetic Pick-Up, Pick-Up Hook)
- One-into-Two Charging Cable
- Instruction Manual
- Three Year Limited Warranty

SPECIFICATIONS:

PISTOL GRIP HANDLE:

Transmission Range: Up to 10m (32.8 ft.) clear field
Transmission Frequency: 2.4GHz
Handle Dimensions: 8.5 x 6.5 x 1.9 in. (215 x 165 x 50mm)
Weight: 15 oz. (425g)
Power Source: 1 Lithium-Ion rechargeable battery (included)

CAMERA TIPPED PROBES:

12mm (0.47 in.) diameter (**DCS400**)

Resolution: 320 x 240 Pixels (NTSC), 704 x 576 pixels (PAL)
Depth of Field (DOF): 30 to 100mm (1.2 to 3.94 in.)
Field of View: 60°
Probe Length: 1m (3.28 ft.)
Optional 12mm Probe Extensions: 1m, 2m, 3m (3.28 ft., 6.56 ft., 9.84 ft.)
Maximum Extended Probe Length: 5m (16 ft.)

9mm (0.35 in.) diameter (**DCS400-09**)

Resolution: 320 x 240 Pixels (NTSC), 704 x 576 pixels (PAL)
Minimum Focus Distance: 10mm (0.5 in.)
Field of View: 60°
Probe Length: 1m (3.28 ft.)
Optional 9mm Probes: 1m, 2m, 3m (3.28 ft., 6.56 ft., 9.84 ft.)

5.5mm (0.20 in.) diameter (**DCS400-05**)

Resolution: 320 x 240 Pixels (NTSC), 704 x 576 pixels (PAL)
Minimum Focus Distance: 10mm (0.5 in.)
Field of View: 60°
Probe Length: 1m (3.28 ft.)
Optional 5.5mm Probes: 1m, 2m, 3m (3.28 ft., 6.56 ft., 9.84 ft.)

DETACHABLE, WIRELESS MONITOR:

Display: 3.5 in. (88.9mm) diagonal TFT LCD Color Screen
Video/Image Resolution: 320 x 240 Pixels (AVI)
Dimensions: 3.9 x 3.3 x 1.0 in. (100 x 85 x 25mm)
Weight: 6.1 oz. (172g)
Power Source: 1 Lithium-Ion rechargeable battery
CE/FCC Approvals: Yes

SAFETY INSTRUCTIONS

- Read and understand all instructions prior to any operation.
- Do not remove labels from the product.
- Do not operate the product in the presence of flammable/explosive gases.
- Do not use the product around corrosive chemicals which can damage sensitive tips.
- Never spill liquid of any kind on the video display units as this may cause damage.
- Do not use the device for personal or medical use.

GENERAL INFORMATION AND MAINTENANCE INSTRUCTIONS

- Do not insert camera probe using excessive force.
- Do not use the probe camera head to clear path-ways or clogged areas.
- Do not exceed the maximum 2” (50mm) bending radius for the probe.
- The camera head and the probe are waterproof but the handle and the removable display unit are not.
- Not intended for use in areas with exposed AC wiring.
- When the camera scope handle battery is low, the charging light on the handle will light up (red).
- When the removable monitor battery is low the “(empty battery icon)” will show up on the screen.
- Should the unit freeze up, press the reset button or power off the unit.
- The camera handle and monitor can only be completely disconnected from the mains by unplugging the ac adapter.
- Charge the batteries every three months when not used for long periods.
- To clean the instrument use mild soap and a soft cloth.

BATTERY PRECAUTIONS

- Please use the included factory AC power adapter. Using other AC adaptors may damage the instrument and void the warranty.
- Full battery charging and discharging is recommended on first use
- The charging time should not be greater than 12 hours for the first few charging cycles. This process will maximize battery capacity.
- The discharging time will vary depending on which functions are being used.
- Monitor and camera handle use Lithium-Ion rechargeable batteries. Do not open battery compartments unless battery replacement is necessary.
- Dispose of the batteries properly. Please follow all applicable regulations.
- Discarding a battery into fire may cause an explosion.

FCC INFORMATION

This device complies with part 15 of the FCC Rules.

PRODUCT COMPONENTS

The *SEEKER™400* Wireless, Recording, Video Inspection System

CHAPTER 1: A ONE MINUTE OVERVIEW

Fig.1

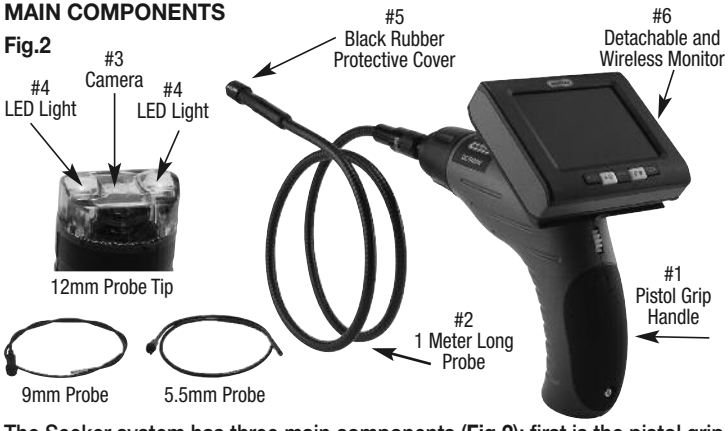
Inside the case in **Fig.1** you'll find several key components of the Seeker system stored in the top half of the carrying case. One is a plastic bag that is taped to the inside of the top. Inside it are the unit's instruction manual (#1) and a small plastic case (#2) containing a Micro SD memory card (#3) and a Micro SD to full size SD card adapter (#4). At the lower left of the lid there is a separate compartment (#5) housing applicable accessories. The 12mm DCS400 system contains 3 accessory tips, a 45 degree mirror (#6), a hook retrieval tip (#7), and a magnetic retrieval tip (#8). Each tip can be attached to the camera head by snapping it onto the flats on either side of the head near its end (#10).

The bottom of the carrying case securely houses the Video Inspection System (#11), along with its charger (#12), the split output charging cable (#13), and two connecting cables (#14, #15) for uploading or viewing stored images. The charger is a 120-volt/240-volt AC adapter which interfaces with the one-into-two charging cable (#13). The connecting cables include a USB interface cable (#14) and a video cable (#15) for connecting the system to a computer or remote monitor.

CHAPTER 2: IN-DEPTH PRODUCT OVERVIEW

MAIN COMPONENTS

Fig.2



The Seeker system has three main components (**Fig.2**): first is the pistol grip handle (#1) which controls the on/off functioning of the probe as well as the

LED brightness. Attached to the handle is the 1 meter long probe (#2) which contains the camera (#3) and the LED lights (#4) in the leading end under the black rubber protective cover (#5). Finally there's the removable and wireless LCD monitor (#6) which controls all of the scope's functioning and recording controls. The LCD monitor can be attached to the handle or removed and used wirelessly.

MAIN CONTROLS

The main controls (**Fig.3**) are below the screen at the front bottom of the display and consist of five buttons. A central black MENU button is (#6) straddled right and left by two yellow buttons (#7, #8) which are straddled by two more black buttons (#9, #10). Each of the buttons has multiple functions and their operation depends upon what mode you are in.

Fig.3

	Left Black Button	Left Yellow Button	MENU Button	Right Yellow Button	Right Black Button
View and record images mode	Take a photo	Rotate Screen Image	***Switch to Main Menus mode***	Magnify Image	Shoot Video
Main Menus	Scroll left through the 3 main Menus	Move up within menu structure Increase Data and time	Select or set menu item	Move down within menu structure Decrease Data and time	Scroll right through the 3 main Menus
Playback mode	Scroll left through stored images	Play, pause and resume video	Access playback menu Select image playback Select open folder	Stop video playback View stored images and folders	Scroll right through the stored images

SETTING-UP THE SYSTEM

Remove the pistol grip handle with attached probe from the hard case. Then remove the wireless LCD monitor. Attach the monitor to the handle by aligning the signal connector slots (#1) on the monitor with the dual tabs (#2) on the top of the handle (**Fig.4**). Slide the monitor to the left until it securely engages the locking buckle clip (#3). (To remove the monitor you need to depress the buckle clip and slide the monitor to the right).

Fig.4

You are now ready to power ON the system or to charge the system. When using the system don't forget to remove the camera's protective cover (**Fig.2** #5).

POWERING THE SYSTEM

To turn the monitor ON simply press the ON/OFF button on the top of the monitor (**Fig.5**).

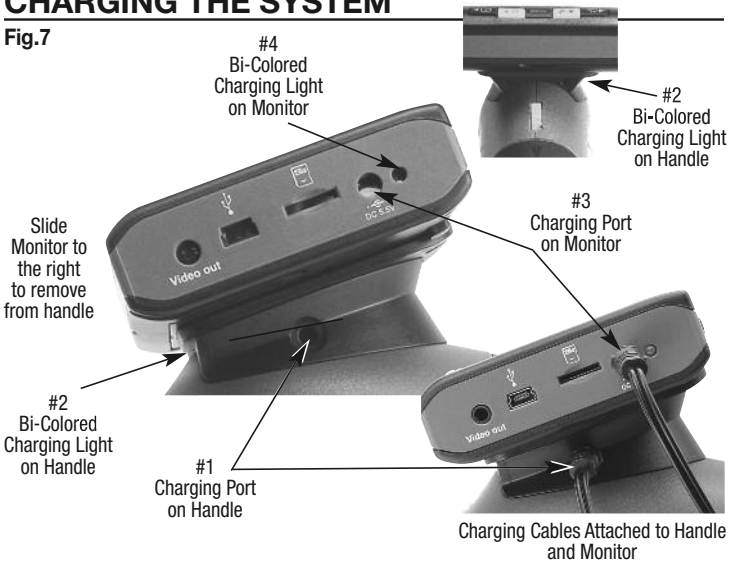
Fig.5

The pistol-grip handle (**Fig.6**) has a yellow thumbwheel for ON/OFF control of the camera and to adjust the brightness of the white LED lights at the end of the camera head.

Fig.6

CHARGING THE SYSTEM

Fig.7



Both the LCD display and the pistol-grip handle have internal Lithium ion rechargeable batteries which can be charged separately or at the same time. **(Fig.7)**

CHARGING THE HANDLE

To charge the handle, insert one of the split cable plugs from the charger interface cable into the jack on the right side of the handle (#1). There is a bi-colored charging light just above the thumbwheel to the right (#2): it glows green when the unit is fully charged, or red when charging.

CHARGING THE MONITOR

To charge the monitor, insert the other split cable plug into the right side port displaying the charging symbol (#3). The monitor charger jack also has a bi-colored charging light (#4) that glows red when the unit is being charged and green when fully charged.

PROBE

Each SEEKER 400 Video Inspection System is supplied already connected to a one-meter-long flexible-obedient probe. The SEEKER 400 System has a slim 12-millimeter diameter tip. The SEEKER 400-09 system is supplied with an ultra-slim 9-millimeter diameter probe and the SEEKER 400-05 system is supplied with an superslim 5.5-millimeter diameter probe. Whichever SEEKER 400 system you're using the other probes are available options and are interchangeable with the base unit. Note that the camera head and probe cable are waterproof, as are the extensions, which, if firmly connected, will make the entire probe waterproof.

To remove the supplied probe from the handle (**Fig.8**), turn the collar that connects them in the direction shown on its surface — counterclockwise — and pull the probe straight out from the handle. To re-attach the probe, or attach the extensions, reverse the process, making sure that the "alignment key" at the end of each probe lines up with the flat on its coupling. Tighten the connections by turning the collar clockwise.

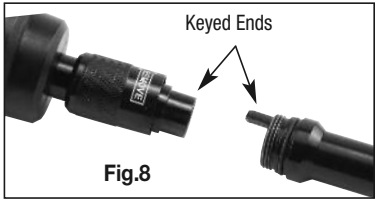


Fig.8

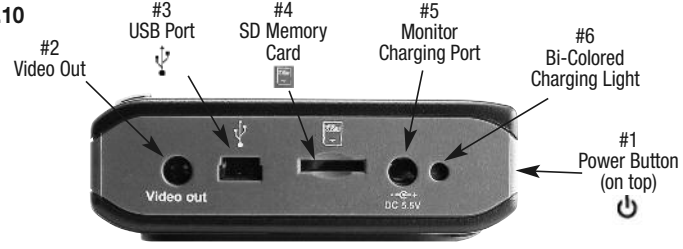
MONITOR

The other main component of the Seeker 400 system is its 3.5-inch color LCD monitor (**Fig.9**). Because the monitor can communicate wirelessly with the base unit, it can show what the probe sees even when the two units are located as far apart as 10 meters, or 32 feet. When the monitor is attached to the pistol-grip handle, the two units communicate via hard-wired connections, rather than wirelessly. This improves the quality of the still images and video captured by the system.

Fig.9

The right side of the LCD monitor (**Fig.10**) houses the controls and connections you will use to view, record and upload your images as well as charge the unit (**Fig.7**). To start with, the button on the top right of the unit (#1) performs two functions. When it is pushed and held for 3+ seconds, it turns the display ON and OFF. When it is pressed only briefly (after the unit has been powered up), it toggles the unit's operating mode between live viewing and recording with playback of pictures and videos.

Fig.10



On the right side of the monitor are the jacks needed to plug in the video cable (#2) "Video out", the USB cable (#3) , the Micro SD memory card (#4), the charging port (#5), and the bicolored charging light (#6).

VIEW AND RECORD IMAGES MODE

In the "live viewing/recording" mode the controls have the following functions:

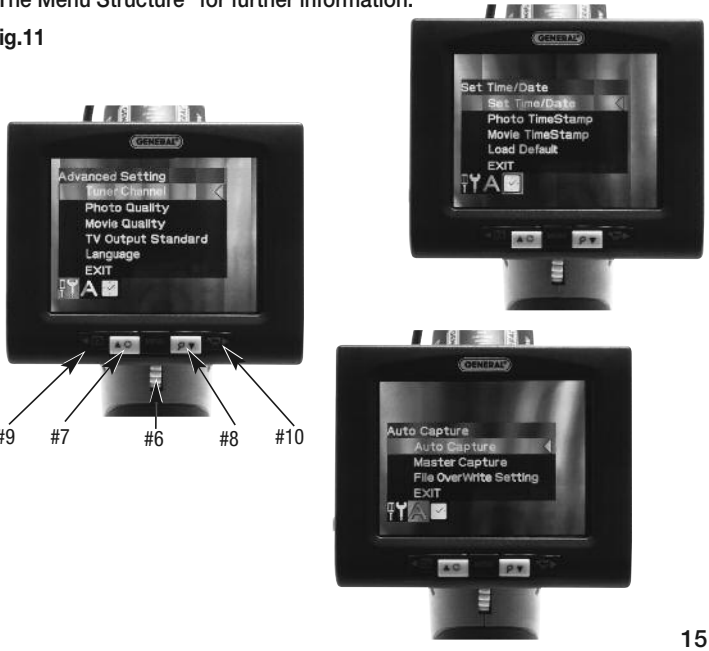
1. Pressing the left black button (#9) takes a still picture (in .jpg format).
2. Pressing the right black button (#10) begins and ends the video recording.
3. Pressing the left yellow button (#7) inverts the screen image 180º.
4. Pressing the right yellow button (#8) enlarges the screen image on the display by up to 4 times. Each time you press this button, the image gets larger by a factor of 0.2 up to 4x. A readout on the bottom of the display indicates the current zoom level.

MAIN MENUS MODE

Pressing the center “MENU” button (#6) will bring you to a series of menus (**Fig.11**) used to set-up the system. These include: the Advanced Settings Menu, the Auto Capture Menu and the Time/Date Menu.

You can scroll right and left to these 3 menus by using the right and left black arrow buttons (#9, #10). Within each top level menu are sub menus and you can scroll up and down within all of these menus using the two yellow buttons (#7, #8). To make a selection within the sub menus, press the menu button (#6). To escape the sub menus, press either of the right and left black buttons (#9, #10). To escape the menu structure, select the EXIT listing at the bottom of each menu and press the MENU button. Please refer to chapter 5 “The Menu Structure” for further information.

Fig.11



PLAYBACK MODE

Once you are in the playback mode (after briefly pressing the ON/OFF button on the top of the monitor), the controls have the following functions:

1. Pressing the left or right outer black buttons (#9 or #10) scrolls through your set of stored pictures and video one step either left or right in their order of capture.

Fig.12

2. Pressing the left yellow button (#7) when a projector icon is on-screen controls the playing of that particular video.

3. Pressing the right yellow button (#8) controls the file menu of the pictures and videos. The first press displays thumbnails of the media captured so far (**Fig.12**). Pressing it again reveals the folder structure storing your pictures and video (**Fig.13**). Each folder handles only so much data so there will be multiple folders depending on how many images you have stored. Pressing the MENU button (#6) after selecting a folder will open that folder. Pressing the MENU button again after selecting an image will open that picture or video for viewing.

Fig.13

4. Finally, by pressing the center Menu button (#6) (while in normal 'playback' mode) you will open the 'Playback' menu (**Fig.14**) where you can format and delete the images.

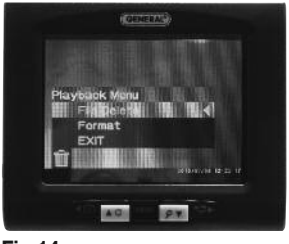


Fig.14

CHAPTER 3: TAKING AND VIEWING PICTURES AND VIDEOS

Before you are able to take any pictures, make sure that the handle grip and display units are both charged, turned on and that the micro SD memory card is securely plugged into the slot on the right of the display. Make sure that the gold contacts are facing front and inserted first. When the memory card is present, the X will no longer appear over the blue SD icon in the upper left corner of the display (**Fig.15**).

Fig.15

To take a picture (in other words, capture a still image), first aim the tip of the probe at the area of interest then press the black button with the camera icon at the far left below the display. You'll note that a yellow icon of a camera briefly appears in the middle of the display (**Fig.16**) to confirm that a picture was taken.

Similarly, to start video recording, press the right black button below the display. The blinking "REC" symbol (**Fig.17**) appears at the top left of the display. To the right of this is a stopwatch that counts up from zero to indicate the duration of the video captured. To stop recording, again press the black button with the projector icon.

Each of the yellow buttons below the display has a second function. The left button (**Fig.11** #7) will invert the image on the screen and the right button (**Fig.11** #8) will zoom in and out up to 4x.

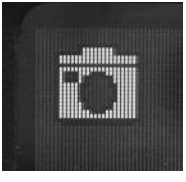


Fig.16

Note that either a yellow camera icon (**Fig.18**) indicating a still picture or an orange projector icon (**Fig.19**) indicating a video appears in the upper left corner. Your pictures and video will appear in the sequence that you took them. To review your pictures use both right and left black buttons below the display to move left and right, just as you would with a digital camera. When an orange projector icon appears you can play the video

Fig.17

by pressing the left yellow button. When videos are being played back, a white film strip icon appears in the upper left of the display, next to the timer (**Fig.20**).

To pause or resume playback again press the yellow button with the up arrow. Pressing the yellow button on the right with the down arrow will cancel the playback and bring you back to the main menu.

To return back to live camera mode again briefly press the on/off button. Pictures and video can viewed simultaneously on a monitor using the video cable or uploaded to a computer using the USB cable or the Micro SD card with or without the adapter.

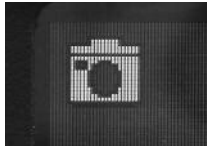


Fig.18

Fig.19

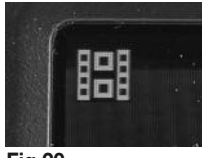


Fig.20

CHAPTER 4: VIEWING STORED IMAGES AND UPLOADING PICTURES AND VIDEOS

You can view your stored images on the scopes monitor, on a computer screen, on a remote monitor, or on a TV. Just a note about format: still image pictures are initially stored on the DCS400 as JPEG files and video is stored as AVI files. To send live video over the internet using Skype, use General Tools RCV100 Streaming Video USB wireless receiver (sold separately).

To connect to a computer you can either use the USB cable connector which has a standard A-Type connector on one end and a Mini-B Type connector on the other end or you can use the Micro SD card to transfer the images.

To connect to a remote monitor or a TV you need to use the video cable. The video cable has a black mini-plug connector on one end and a yellow RCA plug on the other.

For a computer upload using the USB cable simply insert the Mini-B Type connector into the small USB slot on the right side of the scopes monitor which has a USB icon above it. Next, insert the larger A-Type connector into

a USB port of your computer. Once both plugs have been inserted, the DCS400 monitor's screen will go all blue, except for the letters "MSDC" in the center.

Once this has occurred, you can access the stored files through the normal functioning of your computer. The DCS400 will appear as a remote storage device in your computer's menu.

To just view your pictures on a remote device you use the video cable. Simply insert the black mini-plug into the mini-jack on the right side of the DCS400 monitor labeled "Video out". Next, insert the yellow RCA plug into the yellow jack of the remote TV or monitor labeled "Video in". Put the unit into playback mode by briefly depressing the on/off button on its top. When you do this, the scopes monitor goes dark and the remote monitor will display the images. If you're using a TV as your remote device you will need to tune to the "video in" channel.

You then use the black left and right buttons (**Fig.3** #9 & #10) below the display of the DCS400 monitor to scroll through your media.

Finally, if your computer or remote monitor is equipped with a slot for a standard SD or Micro SD memory card, you can view your saved media without using any of the cables. To do so, remove the Micro SD card from the scopes monitor by first pushing it in then releasing it, letting it pop out. If the slot on your computer can accept a Micro SD card directly you can simply plug it in. If the slot is the wider, standard SD slot you can use the SD card adapter that was supplied in the same plastic case as the Micro SD card. Insert the Micro SD card into the open side of the adapter so its gold contacts face the same way as the contacts on the opposite side. Then insert the adapter, contacts first, into the slot on the computer or remote monitor.

If you've done this on a computer, you can now use your computer's normal functioning to locate and view the captured pictures and video. The media files will me found in a folder labeled "YCKC." At this point, it's a good idea to copy the YCKC folder to your computer's hard drive. Once you have stored the pictures and videos on your computer, you can edit, delete, or e-mail any of them, just as you would any digital file.

CHAPTER 5: THE MENU STRUCTURE

ADVANCED SETTINGS
- Tuner Channel
  - Ch1
  - Ch2
  - Ch3
  - Ch4
  - Exit
- Photo Quality
  - High Quality
  - Standard Quality
  - Low Quality
  - Exit
- Movie Quality
  - QVGA
  - D1
  - Exit
- TV Output Standards
  - NTSC
  - PAL
  - Exit
- EXIT

AUTO CAPTURE
- Auto Capture
  - On
  - Off
  - Exit
- Manual Capture
  - Photo 1
  - Photo 3
  - Movie 5
  - Movie 10
  - Exit
- File Overwrite Set
  - On
  - Off
  - Exit
- EXIT

SET TIME/DATE
- Set Time/Date
  - YYYY/MM/DD
  - HH:MM:SS
  - YY/MM/DD
- Photo Time Stamp
  - On
  - Off
  - Exit
- Movie Time Stamp
  - On
  - Off
  - Exit
- Load Default
  - Yes
  - No
- EXIT

PLAYBACK MENU
- File Delete
  - Single
    - Delete
      - Yes
      - No
  - All
    - Delete
      - Yes
      - No
  - Cancel
- Format
  - Yes
  - No
- EXIT

CHAPTER 6: SHUT DOWN

To shut down the monitor, hold the ON/OFF button for 3 or more seconds. A “Goodbye” screen will appear.

To shut off the probe and handle simply rotate the thumbwheel backwards until it clicks off.

We hope that you’ll have years of great service from your Seeker400 Wireless, Recording, Video Inspection System.

TROUBLE SHOOTING

Problems	Causes	Solutions
Will not charge	Adapter didn't make a good connection with product.	Please check and try again.
	The connector or cable is broken.	Replace and try again.
	Dead battery	Ask a technician to replace the battery.
The screen is on but without image or shows "No Signal"	1. Different channel set between the grip and screen.	Set the same channel.
	2. The probe is loose.	Check and connect again.
	3. Stains on the camera head.	Check if stains exist.
LEDs on the camera head are dim at max brightness, display changes from black to white, color display turns itself off after a period.	Low battery	Use adapter for charging.
The product won't turn on.	The circuit is in protection status.	Press reset or use adapter for charging to release.
	Low battery	Use adapter for charging
	Dead battery	Ask a technician to replace the battery.
Abnormal display or invalid keys.	Interference to the screen or voltage fluctuation.	Please use the reset button inside the hole below the stand base.

WARRANTY INFORMATION

THREE YEAR LIMITED WARRANTY

General Tools & Instruments (General) DCS400 Wireless, Recording, Video Inspection System is warranted to the original purchaser to be free from defects in material and workmanship. Subject to certain restrictions, General will repair or replace this instrument, if after examination, it is determined by General to be defective in material or workmanship for a period of three years.

This warranty does not apply to damages that General determines to be from an attempted repair by non-authorized personnel or misuse, alterations, normal wear and tear or accidental damage. The defective unit must be returned to General Tools & Instruments or a General authorized service center, freight prepaid and insured.

Acceptance of the exclusive repair and replacement remedies described herein is a condition of the contract for purchase of this product. In no event shall General be liable for any incidental, special, consequential or punitive damages, or any cost, attorneys fees, expenses, losses alleged to be as a consequence of any damage due to failure of, or defect in any product including, but not limited to, any claims for loss of profits.